

SINGLE CRYSTAL INVESTMENT CAST COMPONENTS  
AND METHODS OF MAKING SAME

ABSTRACT

[0033] High performance single crystal investment cast components and methods of making same are described herein. Embodiments comprise systems for producing such components. The systems comprise: an investment molding cavity; a seed crystal starter cavity; a seed crystal for initiating epitaxial crystal growth in molten metallic material that comes into contact therewith; a grain selector operatively connecting the seed crystal starter cavity and the investment molding cavity for at least one of: (1) selecting a single crystal from the seed crystal to grow into the molten metallic material during solidification, or (2) ensuring that a single crystal from the seed crystal continues to grow into the molten metallic material during solidification; and a grain selector support for at least partially supporting the weight of the investment molding cavity and any molten metallic material contained therein to take at least a portion of this weight off the grain selector, wherein the system is capable of producing a single crystal investment cast component. Methods for producing such components are also described.